INTERMOUNTAIN STATION
Central Reference File
No. 3.4143-11

UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Entomology
Washington, D. C.

Forest Entomology Brief 65.

Forest Insect Field Station,
Coeur d'Alene, Idaho.

INFORMATION ON THE PINE BUTTERFLY IN IDAHO AND MONTANA

The pine butterfly (Neophasia menapia Felder) when in the caterpillar stage attacks and defoliates yellow pine, white pine, and possibly lodgepole pine. Though this insect has been recorded as attacking Douglas fir the writer has no record of its feeding on other than pine, with the noticeable epidemics occurring on western yellow pine. The adult very closely resembles the common cabbage butterfly which is often seen flying around gardens and along roadsides. It has wing expanse of approximately 1 3/4 inches. The antennae are black; the head and body are black above and white beneath, and covered with hairs. Except for the black markings on the tips the forewings of the male are pure white. The hind wings are also pure white except along the tips, which are lightly marked with black. The forewings of the female have the same black markings as those of the male but are of a yellowish tint. The hind wings have the same yellowish tint but with heavier black markings. With many females, but not all, there are bright orange spots along the apical margin of the hind wings.

The larvae, as they emerge from the eggs, are very small, being approximately one-tenth of an inch in length. The body is pale green, and the head a shiny black. The mature larvae are approximately 1 inch in length. The body is dark green in color, covered with a fine pubescence, with two white lateral stripes down each side, and with the anal shield produced behind into two blunt, well-separated projections. The head is pale green covered with short hairs.

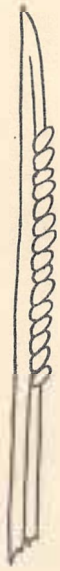
There is only one generation of this insect in Idaho each season. The overwintering eggs start to hatch about the time that the new needles are beginning to appear on the western yellow pine. This usually occurs during the early part of June, but depends upon the weather conditions. The development of the young larvae is very slow during the first two weeks. They feed in clusters encircling the needles, with their heads pointing toward the tip of the needle, making a shiny ring of black beads. During the first molt the shiny black head covering is shed, the subsequent color being yellowish green. When the larvae are about half grown the habit of feeding in clusters is no longer continued but often two or more may be found on the same needle, especially if there is a shortage of food material. The larvae are approximately full grown by the last of July or about 50 days after emerging.

FILE COPY MISSOULA FOREST INSECT LABORATORY

When full grown the larvae lower themselves by silken threads, which are sometimes 75 feet or more in length, from the host trees to the ground. Here they pupate as chrysalids on shrubs, grasses, limbs, fences, tree trunks, etc. The pupal stage lasts from 15 to 20 days. Mating occurs always immediately after the adults appear and eggs are laid a few hours later. These eggs are laid along the pine needles in rows of 5 to 20 at an angle of 45 degrees, pointing toward the end of the needle, and are firmly cemented together. The eggs overwinter, and hatch the following June. Though the normal habit of the female is to deposit her eggs on the needles near the top of mature trees, the eggs are often found on lower branches and small trees, especially during the second year of an outbreak.

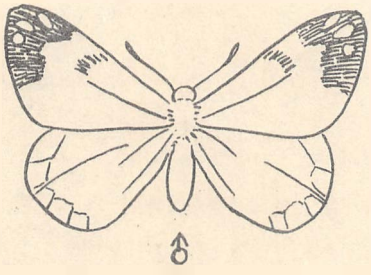
Controlling outbreaks of this insect are rather prohibitive because of the expense involved. Epidemics cover thousands of acres which would have to be sprayed or dusted with a stomach poison in order to destroy the caterpillars. With the development of aircraft it is possible that outbreaks when recognized in time can be checked by dusting from such equipment. Nature has provided a small, wasplike parasite (Theronia fulvescens) which has successfully controlled several outbreaks of the pine butterfly in our western forests. In a recent outbreak of the butterfly in central Idaho it was found that during the second year of the epidemic over 90 per cent of the caterpillars were parasitized by this insect. The third summer it was practically impossible to find a butterfly or caterpillar within the area. Though this parasite is successful in reducing outbreaks of the pine butterfly, it does not do so until at least two years' defoliation has occurred. If severe, this defoliation will result in the death of a rather large percentage of the mature trees. In the event of a severe epidemic of the pine butterfly, it would perhaps be economically feasible to plan a salvage cutting of the dying trees.

James C. Evenden,
Associate Entomologist.
Forest Insect Investigations.

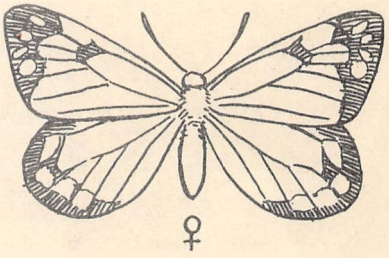


Eggs
(Enlarged)

Pupa



Male pine butterfly



Female pine butterfly

Larvae